

ABSTRACT

A solid-state imaging device, a line sensor and an optical sensor for enhancing a wide dynamic range while keeping high sensitivity with a high S/N ratio, and a method of operating a solid-state imaging device for enhancing a wide dynamic range while keeping high sensitivity with a high S/N ratio are provided. The solid-state imaging device comprises an integrated array of a plurality of pixels, each of which comprises a photodiode PD for receiving light and generating photoelectric charges, a transfer transistor Tr1 for transferring the photoelectric charges, and a storage capacitor element C connected to the photodiode PD at least through the transfer transistor Tr1 for accumulating, at least through the transfer transistor Tr1, the photoelectric charge overflowing from the photodiode PD during accumulating operation.